

DOCKET NO.: RA5256
Application No.: 09/747,036
Responsive to PTO Communication Dated: 12/03/03

PATENT

(Amended Hereby) Claim 1:

1. In a computer system having identifiable memory address spaces which may be allocated to client processes, a queue bank repository system for facilitating control of such address spaces to such client processes comprising:

a repository of said memory address spaces wherein each memory address space within said repository may be called an entry and each said entry contains a value which can be either an end-of-repository space indicator or a current value which indicates a next available entry, or said entry may contain a queue bank descriptor, and wherein said repository has a header memory value which is either a one of said current values or said end-of-repository space indicator,

a manager of said repository comprising

a functionality for generating a token wherein said token contains an indication of said header memory value and for passing said token to a client process if said client process passes or attempts to pass a queue bank descriptor to said manager for storage into one of said memory address spaces of said repository, and

~~wherein said manager further comprises a functionality for storing said queue bank reference descriptor from said client process into a one of said memory address spaces indicated by said header memory value,~~

and wherein said manager further comprises a functionality for retrieving any requested queue bank descriptor from said queue bank repository upon receipt of tendered a token from any client process which has previously received said token, directly or indirectly, from said functionality for generating a token, and for sending said queue bank descriptor to said tendering client process to enable said tendering client process to retrieve a queue bank descriptor corresponding to said randomly requested queue bank descriptor, said functionality for retrieving any requested queue bank descriptor further comprising a functionality for placing the header for the next available entry into the returned entry from which said queue bank descriptor had been retrieved responsive to said

DOCKET NO.: RA5256
Application No.: 09/747,036
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PATENT

tendered token and which functionality is also for putting the address of the returned entry into the next available entry.

(Amended Hereby) Claim 2:

2. The queue bank repository system of claim 1 wherein said functionality for generating a token is an instruction and wherein said functionality for storing said queue bank ~~reference~~ descriptor from said client process into a one of said memory address spaces indicated by said header memory value is also an instruction.

(Amended Hereby) Claim 3:

3. The queue bank repository system of claim 1 wherein said manager further comprises a functionality for reading a value in said one of said memory address spaces indicated by said header value and storing said value into said header prior to or contemporaneously with storing said queue bank ~~reference~~ descriptor from said client process into said one of said memory address spaces indicated by said current value so that following said storing, said current value shall contain a value that was in said one of said memory address spaces.

(Original) Claim 4:

4. The queue bank repository system of claim 1 wherein said functionality for reading further comprises a functionality for clearing said value from said one of said memory address spaces while storing said value into said header current value.

(Original) Claim 5:

5. The queue bank repository system of claim 1 wherein said manager further comprises a functionality for reading a value in said one of said memory address spaces indicated by said header value and if said header value is said end-of-repository value, comprising a functionality for generating a status indicating the repository is full.

DOCKET NO.: RA5256**PATENT****Application No.:** 09/747,036**Responsive to PTO Communication Dated:** 12/03/03**(Amended Hereby) Claim 6:**

6. The queue bank repository system of claim 1 wherein said manager further comprises a functionality for reading a value in said one of said memory address spaces indicated by said header value and if said header value is said end-of-repository value, comprising a functionality for calling an operating system to cause said operating system to allocate a new space to add to said repository and for returning a value indicative of the address of the entry in said new space wherein queue bank reference descriptors can be stored by a client process.

(Amended Hereby) Claim 7:

7. The queue bank repository system of claim 1 wherein said repository of said memory address spaces has more than one set of said memory address spaces and uses only a portion of those of said more than one sets as said memory address space within said repository unless said portion becomes fully occupied and in such event, upon said client process attempting to pass or passing a queue bank reference descriptor to said manager for storage to said portion when said portion is fully occupied, a functionality extends said memory address space within said repository to include another one of said one set of said memory address spaces to said memory address space.

(Amended Hereby) Claim 8:

8. The queue bank repository system of claim 1 wherein a said token is available in a plurality of different formats as determined by the specific implementation—~~Said~~ and wherein said formats include, but are not limited to, pointer, offset, and entry index.

(Amended Hereby) Claim 9:

9. The queue bank repository system of claim 1 wherein said tokens within the repository each have a size to hold any queue bank reference descriptor that could be generated on the system.

DOCKET NO.: RA5256
Application No.: 09/747,036
Responsive to PTO Communication Dated: 12/03/03

PATENT

(Amended Hereby) Claim 10:

10. A method of storing a queue bank ~~reference~~ descriptor from a client process into a queue bank repository comprising:

indicating that a client process needs to store a queue bank ~~reference~~ descriptor into said queue bank repository,

providing to said client process a token having an indication of an entry address into which the queue bank ~~reference~~ descriptor is stored in said queue bank repository such that the client can later retrieve the stored queue bank by returning said token to said queue bank repository,

storing said queue bank ~~reference~~ descriptor into said entry address, and

removing said queue bank from the visible address space of the client process,

and wherein upon said return to said queue bank repository a next available entry address in said queue bank repository will be updated using the entry address into which said queue bank descriptor had been stored.

(Amended Hereby) Claim 11:

11. The method of claim 10 further comprising,

reading from a header in said queue bank repository a ~~said~~ next available entry address location prior to providing said token to said client and wherein said storing step comprises storing said queue bank ~~reference~~ descriptor into a last available entry address location.

(Amended Hereby) Claim 12:

12. The method of claim 10 further comprising manufacturing said token to include an indication of said last available entry address location into which said client queue bank ~~reference~~ descriptor was stored.

DOCKET NO.: RA5256
Application No.: 09/747,036
Responsive to PTO Communication Dated: 12/03/03

PATENT

(Amended Hereby) Claim 13:

13. The method of claim 10 further comprising manufacturing said token to include an indication of said last available entry address location into which said client queue bank referencee descriptor was stored, or if the repository is full, providing an indication of fullness.

(Amended Hereby) Claim 14:

14. The method of claim 10 further comprising manufacturing said token to include an indication of said last available entry address location into which said client queue bank referencee descriptor was stored, or if the repository is full, not providing any token until said repository has an available address entry.

(Amended Hereby) Claim 15:

15. The method of claim 10 further comprising manufacturing said token to include an indication of said last available entry address location into which said client queue bank referencee descriptor was stored, or if the repository is full, providing an interrupt to an operating system.

(Original) Claim 16:

16. The method of claim 15 wherein said operating system provides for more available entry address locations when it receives said interrupt.

DOCKET NO.: RA5256
Application No.: 09/747,036
Responsive to PTO Communication Dated: 12/03/03

PATENT

(Amended Hereby) Claim 17:

17. The method of claim 10 further comprising manufacturing said token to include an indication of said last available entry address location into which said client queue bank reference descriptor was stored, or if the repository is full, opening a new space of entries via a call to an operating system, so that said manufacturing of said token can be accomplished with an indication that said client queue bank reference descriptor was stored in said new space.

(Amended Hereby) Claim 18:

18. A method of retrieving a queue bank by a client process from a queue bank repository comprising:

providing a token to said queue bank repository by said client,
reading said token to determine an address containing said queue bank reference descriptor by said queue bank repository,
providing data from said address containing said queue bank reference descriptor to said client process by said queue bank repository, and
establishing said retrieved queue bank in the visible address space of the client as specified by the client.

(Amended Hereby) Claim 19:

19. A method for handling invalid attempts to retrieve a queue bank by a client process from a Queue Bank Repository comprising:

providing a false token to said queue bank repository by said client,
reading said token to determine an address containing said queue bank reference descriptor by said queue bank repository
providing a status indicating that the token was not valid (no deposit currently exists at that token address).

DOCKET NO.: RA5256
Application No.: 09/747,036
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PATENT

(Amended Hereby) Claim 20:

20. A system for handling a queue bank repository system comprising at least two methods, the first method, for storing a queue bank from a client process into a queue bank repository comprising:

indicating that a client process needs to store a queue bank into said queue bank repository,

providing to said client process a token having an indication of an entry address into which the queue bank ~~reference~~ descriptor is stored in said queue bank repository such that the client can later retrieve the stored queue bank, and

storing said queue bank ~~reference~~ descriptor into said entry address,

and

the second method, for retrieving a said queue bank that has been from a client process in a queue bank repository comprising:

providing a token to said queue bank repository by said client,

reading said token to determine an address containing said queue bank ~~reference~~ descriptor by said queue bank repository, and

providing data from said address containing said queue bank to said client process by said queue bank repository.

(Original) Claim 21:

21. The system of claim 19, further comprising a method for handling invalid attempts to retrieve a queue bank by a client process from a Queue Bank Repository comprising:

providing a false token to said queue bank repository by said client,

reading said token to determine an address containing said queue bank by said queue bank repository, and

providing a status indicating that the token was not valid.